## Amendments to the Claims

1. (Currently amended) A method of detecting an opaque image in an area of each of a sequence of frames comprising pixels that represent digital video images, the method comprising the steps of:

detecting a scene change between at least two of said frames, designated as a current frame and a reference frame;

upon detecting a scene change, calculating a stochastic measure $\sigma_d$ of a plurality of pixels in the ~~image~~ two frames based on ~~the~~ a standard deviation of differences in pixel values in said two frames in ~~the~~ a temporal domain; and

detecting an opaque image in said area by comparing the stochastic measure $\sigma_d$ with a given noise level ~~(STD)~~.

2. (Currently amended) The method of claim 1, wherein the steps of detecting a scene change further include[[s]] the steps of:

determining differences in pixel intensities between said two frames;

subtracting the noise mean from said differences;

comparing the absolute values of the differences with noise mean subtracted to a first threshold value to detect pixels with significant intensity changes; and

comparing a percentage of a plurality of changed pixels in the current frame to a second threshold value to detect a scene change.

3. (Currently amended) The method of claim 2, wherein the steps of determining differences in pixel intensities further include the steps of determining an absolute difference in pixel intensities between said two frames.

4. (Currently amended) The method of claim 2, wherein the first threshold value, denoted as $t_l$, is a function of noise in the video images.

5. (Currently amended) The method of claim 4, wherein the first threshold value $t_l$ is determined as $t_1 = a \times n + b$, ~~such that~~ wherein $n$ denotes the noise level, and $a$ and $b$ are adjustable parameters, ~~wherein~~ such that increasing ~~the~~ values of $a$ and/or $b$ results in a lower scene change detection sensitivity.

6. (Currently amended) The method of claim 1, wherein the steps of detecting a scene change further include[[s]] the steps of:

generating a count $C$ of ~~the~~ a number of pixels in the current frame whose difference in intensity relative to corresponding pixels in the reference frame, after subtracting the given noise ~~mean~~ level, exceeds ~~the~~ a threshold value .

7. (Currently amended) The method of claim 1, wherein the steps of detecting a scene change further include[[s]] the steps of, for each of a plurality of pixels in the current frame and each corresponding pixel in the reference frame:

determining ~~the~~ a difference in pixel intensity between said two pixels;

subtracting ~~the~~ a noise mean from said difference;

comparing ~~the~~ a absolute value of the difference, from which the noise mean has been subtracted, to a first threshold value; and

incrementing a running count $C$ if the difference exceeds the first threshold value.

8. (Currently amended) The method of claim 6, wherein the steps of detecting a scene change further include[[s]] the steps of:

determining a value $p$ as a function of ~~the~~ a ratio of said count $C$ and the total number $N$ of pixels in each frame; and

comparing the value $p$ to a second threshold value to detect the scene change.

9. (Currently amended) The method of claim 1, wherein the steps of calculating the stochastic measure~~ment~~ $\sigma_d$ further include[[s]] the steps of:

generating ~~the~~ a squared difference[[s]] obtained for each of a plurality of said pixels;

subtracting ~~the~~ a noise mean from each squared difference;

generating ~~the~~ a sum of ~~the~~ absolute values of said squared difference with the noise mean subtracted; and

generating an average of the sums, and determining the stochastic measure $\sigma_d$ based on said average.

10. (Currently amended) The method of claim 9, wherein the stochastic measure~~ment~~ $\sigma_d$ is determined as:

$$\sigma_d = \sqrt{\frac{\sum_{t=1}^{M} |d(t) - \mu_s|^2}{M}},$$

wherein:

$$d(t) = p(t) - p(t - \tau),$$

$M$ is ~~the~~ a number of frames involved in the scene change detection,

$p(t)$ denotes ~~the~~ a pixel intensity value in one of said $M$ frames, and

$p(t- \tau)$ denotes ~~the~~ a corresponding pixel intensity value in another one of said $M$ frames.

11. (Currently amended) The method of claim 1, wherein the steps of detecting an opaque image further include[[s]] the steps of:

classifying each pixel in said area of the current frame as an opaque image pixel[[,]] if ~~the~~ $\sigma_d$ for that pixel matches the given noise level, wherein the given noise level is represented by ~~the~~ a standard deviation $\sigma_s$.

12. (Currently amended) The method of claim 11, wherein the steps of detecting an opaque image further include[[s]] the steps of:

classifying a pixel $p(i)$ in the current frame as an opaque image pixel[[,]] if $| \sigma_d (i) - \sigma_s | < t$, otherwise, classifying the pixel $p(i)$ as a non-opaque image pixel,

wherein,

$p(i)$ is the i<sup>th</sup> pixel in the current frame,

$\sigma_s$ is standard deviation of noise in the video ~~Signal~~ images, and

$t$ is a pre-defined threshold for tolerating measurement and computation errors.

13. (Original) The method of claim 11, further comprising the steps of:

detecting and reclassifying any mis-classified pixels in a refinement process.

14. (Currently amended) The method of claim 13, wherein the refinement process ~~further~~ includes the steps of:

if a pixel is classified as a an opaque image pixel, while less than two of its neighboring pixels are classified as opaque image pixels, then reclassifying that pixel as a non-opaque image pixel; and

if a pixel is classified as a non-opaque image pixel, while more than two of its neighboring pixels are classified as opaque image pixels, then reclassifying that pixel as an opaque image pixel.

15. (Currently amended) An opaque image detection system for detecting an opaque image in an area of each of a sequence of frames including pixels that represent digital video images, the system comprising:

a scene change detector that detects scene change between at least two of said frames, designated as a current frame and a reference frame;

a stochastic characteristic generator that, upon detection of scene change by the scene change detector, calculates a stochastic measure $\sigma_d$ of said area based on ~~the~~ a standard deviation of differences in pixel values in said two frames in the temporal domain; and an opaque image detector that detects an opaque image in said area by comparing the stochastic measure $\sigma_d$ with a given noise level[[,]] represented by the standard deviation $\sigma_s$.

16. (Currently amended) The system of claim 15, wherein the scene change detector further determines differences in pixel intensities between said two frames, and compares the differences to a first threshold value to detect significantly changed pixels, and compares ~~the~~ a percentage of significantly changed pixels within the current frame to a second threshold to detect a scene change.

17. (Currently amended) The system of claim 16, wherein the scene change detector determines differences in pixel intensities by determining an absolute difference in pixel intensities between said two frames.

18. (Currently amended) The system of claim 16, wherein the first threshold value, denoted as $t_l$ is a function of noise in the video images.

19. (Currently amended) The system of claim ~~19~~ 16, wherein the first threshold value $t_l$ is determined as $t_1 = a \times n + b$, wherein ~~such that~~ $n$ denotes the noise level, and $a$ and $b$ are adjustable parameters, such that ~~wherein~~ increasing ~~the~~ values of $a$ and/or $b$ results in lower scene change detection sensitivity.

20. (Currently amended) The system of claim 16, wherein the scene change detector further generates a count $C$ of ~~the~~ a number of pixels in the current frame whose differences in

intensities relative to corresponding pixels in the reference frame, with noise mean subtracted, exceeds the first threshold value.

21. (Currently amended) The system of claim 16, wherein the scene change detector is further configured such that, for each of a plurality of pixels in the current frame and each corresponding pixel in the reference frame, the scene change detector determines ~~the~~ a difference in pixel intensity between said two pixels with noise mean subtracted, compares ~~the~~ a difference to the first threshold value, and increments a running count $C$ if the difference exceeds the first threshold value.

22. (Currently amended) The system of claim 21, wherein the scene change detector further determines a value $p$ as a function of ~~the~~ a ratio of said count $C$ and ~~the~~ a total number $N$ of pixels in each frame, and compares the value $p$ to a second threshold value to detect scene change.

23. (Currently amended) The system of claim 15, wherein the stochastic characteristic generator further calculates the stochastic measure~~ment~~ $\sigma_d$ by generating a sum of ~~the~~ squared differences, with noise mean subtracted, obtained for each of a plurality of said pixels, generating an average of the sum[[s]], and determining the stochastic measure $\sigma_d$ based on said average.

24. (Currently amended) The system of claim 23, wherein the stochastic measure~~ment~~ $\sigma_d$ is determined as:

$$\sigma_d = \sqrt{\frac{\sum_{t=1}^{M} \left| d(t) - \mu_s \right|^2}{M}},$$

wherein:

$$d(t) = p(t) - p(t - \tau),$$

$M$ is ~~the~~ a number of frames involved in the scene change detection,

$p(t)$ denotes ~~the~~ a pixel intensity value in one of said $M$ frames, and

$p(t-\tau)$ denotes ~~the~~ a corresponding pixel intensity value in another one of said $M$ frames.

25. (Currently amended) The system of claim 15, wherein the opaque image detector further classifies each pixel in said area of the current frame as an opaque image pixel[[,]] if ~~the~~ $\sigma_d$ for that pixel matches [[a]] the given noise level~~, represented by the standard deviation $\sigma_s$~~.

26. (Currently amended) The system of claim 25, wherein the opaque image detector further classifies a pixel $p(i)$ in the current frame as an opaque image pixel[[,]] if $| \sigma_d(i) - \sigma_s | < t$, otherwise, the opaque image detector classifies the pixel $p(i)$ as a non-opaque image pixel, wherein:

$p(i)$ is the $i^{th}$ pixel in the current frame, and

$\sigma_s$ is standard deviation of noise in the video ~~Signal~~ images, and

$t$ is a pre-defined threshold for tolerating measurement and computation errors.

27. (Original) The system of claim 26, further comprising a refinement module that detects and reclassifies any mis-classified pixels in a refinement process.

28. (Currently amended) The system of claim 27, wherein the refinement module is further configured such that if a pixel is classified as a an opaque image pixel[[,]] while less than two of its neighboring pixels are classified as opaque image pixels, then ~~the refinement module reclassifies that~~ the pixel is reclassified as a non-opaque image pixel, and if a pixel is classified as a non-opaque image pixel[[,]] while more than two of its neighboring pixels are classified as opaque image pixels, then ~~the refinement module reclassifies that~~ the pixel is reclassified as an opaque image pixel.